

**Abstract:**

A photocatalytic composite material having a photocatalytic titanium oxide film on the surface of a substrate is produced by a CVD method in which  $\text{TiCl}_4$  vapor is reacted with water vapor. The  $\text{TiCl}_4$  vapor and the water vapor are injected into a vapor deposition chamber (9) through nozzles (5) and (6), respectively, such that the resulting two injected vapor streams meet before reaching the substrate, thereby mixing the two vapors. Within 3 seconds after this mixing, the mixed vapors are brought into contact with a substrate (1) which is moving in one direction. Preferably the  $\text{TiCl}_4$  vapor is injected in a reverse direction with respect to the direction of movement of the substrate through a multi-orifice nozzle (5), while the water vapor is injected through a slit nozzle (6) disposed at a smaller angle with respect to the substrate.